STATE OF CALIFORNIA—THE RESOURCES AGENCY GRAY DAVIS, *Governor*

DELTA PROTECTION COMMISSION
14215 RIVER ROAD
P.O. BOX 530
WALNUT GROVE, CA 95690
Phone (916) 776-2290
FAX (916) 776-2293
E-Mail: dpc@citlink.net Home Page: www.delta.ca.gov

August 13, 1999

To: Delta Protection Commission

From: Lori Clamurro, Delta Protection Commission Staff

Re: Near-Term Implementation of the CALFED Program
Source: CALFED Implementation Plan, June 1999
(For Commission Information)

Phase II, the programmatic environmental review process, will culminate with a Record of Decision (ROD), anticipated in June 2000. Following the certification of the ROD, CALFED will begin Phase III, the implementation phase. Phase III will include site-specific environmental review and permitting of the actions which are currently being identified in CALFED's Implementation Plan (a Technical Appendix to the Revised DEIR/DEIS).

The Implementation Plan outlines proposed actions for Stage 1, the first seven years of implementation, for all CALFED Program elements. The Implementation Plan also identifies the preliminary actions to be implemented during the first two years of implementation (Stage 1A). These preliminary actions have been grouped into seven "bundles" of actions to provide balanced actions for specific CALFED problem and solution areas as well as programmatic balance between actions that are not specific to any geographic area.

This memo contains excerpts from CALFED's Implementation Plan, which list the proposed Stage 1 and Stage 1A actions. Those issues and actions of relevance to the Delta Primary Zone are marked with a ⊛.

2.0 STAGE 1 ACTIONS

Stage 1 is defined as the seven year period commencing with the final decision on the Programmatic EIS/EIR. Agreement on Stage 1 actions is only one part of the decision for a Preferred Program Alternative, but it is important that these actions achieve balanced benefits and lay a solid foundation for successful implementation of the Program.

The following pages provide more detail on potential actions for Stage 1. To the extent that such actions require additional authorizing legislation, such authorization will be developed and pursued in cooperation with stakeholders.

Adaptive management is an essential part of the implementation strategy for every program element to allow necessary adjustments as conditions change in future stages of implementation and as more is learned about the system and how it responds to restoration efforts. Consistent with the concept of adaptive management, some actions may need to be refined within the time frame of Stage 1 to reflect changing conditions or new information.

The outcome of and certain sites for Stage 1 decisions will not be known until additional information, including need for mitigation, is available and until the options to carry out these Stage 1 proposals have undergone environmental review. Consequently, the outcome could be altered as a result of that second tier environmental review and mitigation measures imposed as a part of those actions. However, where the impacts from the actions in Stage 1 have been included in the Programmatic EIS/EIR, the subsequent environmental documents can tier off the Programmatic document for cumulative and long-range impacts of the programmatic decision.

Each potential action in the following Stage 1 list includes an estimate (in parentheses) of when the action may occur within Stage 1. For example, "(yr 1)" indicates the action is expected to occur in the first year following the final decisions on the Programmatic EIS/EIR.

With extensive input from CALFED agencies and stakeholders, CALFED has begun work on grouping high priority Stage 1 actions into a series of bundles to provide regional and programmatic balance, as described below. CALFED will continue to work with all interested parties between the Revised Draft EIS/EIR and the Final EIS/EIR on refining the early implementation actions (Stage 1a). Linking the actions would help assure that they all move forward together. These may be linked within the same project EIS/EIR, tied by contractual documents, bond language, appropriation legislation, or other means.

restoration projects into levee projects. Continue to develop techniques as major levee projects are implemented (Years 1-7).

7. Fund levee improvements up to PL84-99 in first stage (yr 1-7); e.g., proportionally distribute available funds to entities making application for cost sharing of Delta levee improvements.
8. Further improve levees which have significant statewide benefits in first stage (yr 1-7) ; e.g., statewide benefits to water quality, highways, etc.
9. Coordinate Delta levee improvements with Stage 1 water conveyance, water quality improvements and with potential conveyance improvements in subsequent stages (yr 1-7).
10. Enhance existing emergency response plans, approximately $29 million in Stage 1 (yr 1-7); e.g., establish $10 million revolving fund, refine command and control protocol, stockpile flood fighting supplies, establish standardized contracts for flood fighting and recovery operations, outline environmental considerations during emergencies.
11. Implement current Best Management Practices (BMPs) to correct subsidence effects on levees Assist CMARP activities to quantify the effect and extent of inner-island subsidence and its linkages to all CALFED objectives (yr 1-7).
12. Complete total risk assessment for Delta levees (yr 1-7) and develop and begin implementation of risk management options as appropriate to mitigate potential consequences.
13. Complete the evaluation of the best method for addressing the Suisun Marsh levee system and begin implementation (yr 1-2).

2.2 Water Quality

The water quality program will consist of a wide variety of actions to provide good water quality for environmental, agricultural, drinking water, industrial, and recreational beneficial uses of water. The majority of current water quality actions rely on comprehensive monitoring, assessment, and research to improve understanding of effective water quality management and on the ultimate control of water quality problems at their sources. The Stage 1 water quality efforts focus on reducing constituents contributing toxicity to the ecosystem and affecting water users; reducing total organic carbon loading, salinity, and pathogens that degrade drinking water quality; and reducing oxygen depleting substances and sediment loads that degrade ecological water and habitat quality. In addition, research and pilot studies are recommended to obtain information prior to implementation of some actions. CALFED is pursuing Stage 1 actions to protect public health through continuous improvements in drinking water quality. The Stage 1 actions also include studies and investigations that will contribute to an assessment and decision on the need for additional conveyance actions and/or other means of providing better quality source water.

- Participate in Brake Pad consortium to reduce introduction of copper (yr 1-7).
- Partner with municipalities on evaluation and implementation of stormwater control facilities (yr 2-5).
- Participate in remediation of mine sites as part of local watershed restoration and Delta restoration (yr 2-7).

7. Conduct the following salinity reduction work in coordination with the San Joaquin Valley Drainage Program:
   - Develop and implement supply water quality management activities to improve supply quality (yr 1-7).
   - Develop and implement a management plan to reduce drainage and reduce total salt load to the San Joaquin Valley (yr 1-7).
   - Encourage source reduction programs including tiered pricing, expansion of drainage recirculation systems, land management and, where other options are infeasible, land retirement (yr 1-3).
   - Complete ongoing pilot projects to evaluate the feasibility of water reuse, through agroforestry, of various concentrations of saline water and implement where feasible (yr 1-6).
   - Study feasibility of desalination methods including reverse osmosis (yr 7).
   - Study cogeneration desalination (yr 7).
   - Implement real time management of salt discharges (yr 3-7).
8. Conduct the following selenium work:
   - Conduct selenium research to fill data gaps in order to refine regulatory goals of source control actions; determine bioavailability of selenium under several scenarios (yr 1-5).
   - Research interactions of mercury and selenium (yr 2-3).
   - Evaluate and, if appropriate, implement real-time management of selenium discharges (yr 1-7).
   - Expand and implement source control, treatment, and reuse programs (yr 1-7).
   - Coordinate with other programs (yr 1-7); e.g., recommendations of San Joaquin Valley Drainage Implementation Program, CVPIA for retirement of lands with drainage problems that are not subject to correction in other ways. (CVPIA alone will retire approximately 70,000 acres of land with selenium-caused water quality problems during time period of Stage 1.)
9. Conduct the following sediment reduction work/organochlorine pesticides:
   - Participate in implementation of USDA sediment reduction program (yr 1-7).
   - Promote sediment reduction in construction areas and urban stormwater, and other specific sites (yr 1-7).
   - Implement stream restoration and revegetation work (yr 4-7).
   - Quantify and determine ecological impacts of sediments in target watersheds, implement corrective actions (yr 4-7).

and in Delta tributaries. Analyze significance for treatment of drinking water (yr 1-3).

- Convene a Delta Drinking Water Council to consider relevant technical data to inform CALFED in its consideration of solutions to identified public health issues for urban users of Delta water (yr 1-7).
- Develop a plan to achieve CALFED's public health protection targets for drinking water (by yr 7).

13. Conduct the following turbidity and sediment work:
    - Implement protection actions in the upper watershed to reduce sedimentation of fish spawning habitat (yr 1-7).
    - Implement erosion control BMPs in the upper watershed (yr 1-7).
    - Construct sedimentation basins in urban and suburban areas (yr 1-7).
    - Evaluate use of a head control structure on lower Dominici Creek (yr 2-4).
    - Perform quantitative analysis of river sediment loads, budgets, and sources (yr 1-7).

2.3 Ecosystem Restoration

The CALFED ecosystem restoration program (ERP) is designed to maintain, improve, and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species. The ERP is also designed to achieve recovery of listed species dependent on the Delta and Suisun Bay as identified in the Multi-species Conservation Strategy, and support the recovery of listed species in San Francisco Bay and in the watershed above the estuary. A foundation of this program element is the restoration of ecological processes associated with streamflow, stream channels, watersheds, and floodplains. Implementation of the ERP over the 30 year implementation period will be guided through an ecosystem-based, adaptive management approach. ERP goals and objectives for ecosystem, habitat, and species rehabilitation are designed to produce measurable and progressive improvements to the Bay-Delta ecosystem resulting in a high level of ecosystem health and species recovery that exceeds existing regulatory requirements. The Stage 1 restoration efforts are structured to accomplish significant improvement in Bay-Delta ecological health through a large scale adaptive management approach in which the actions inform management decisions in later stages of implementation. All Stage 1 actions will undergo an appropriate level of environmental documentation, will be subject to various permit requirements, and will be dependent on budget allocations.

Success of ERP Stage 1 actions is also critically dependent on other program elements, including water quality improvement actions throughout the Bay-Delta watershed, levee system integrity actions, and integration with a watershed management strategy and a water transfers market. The general priorities for restoration activities will be first on existing public lands as appropriate, second to work with landowners in voluntary efforts to achieve habitat goals

purchases by the end of Stage 1, which will require at least 100,000 acre-feet (at a potential annual cost of $20 million). Evaluate how the ERP water acquisitions and EWA water acquisitions will be integrated most effectively(yr 1-7).

8. Complete targeted research and scientific evaluations needed to resolve the high priority issues and uncertainties (e.g., instream flow, exotic organisms, and Bay-Delta food web dynamics) to provide direction for implementing the adaptive management process and information necessary for making critical decisions in later stages (yr 1-7).
9. Establish partnerships with universities for focused research (yr 1-7).
10. Complete the remaining 60% of the easements and/or acquisition for the Sacramento River meander corridor identified under the SB 1086 Program. Provide assurances for and participation by Sacramento River users and landowners that provides indemnification of affected parties against flooding impacts on neighboring landowners and impacts on water diverters (yr 1-7).
11. Acquire flood plain easements, consistent with ecosystem and flood control needs along the San Joaquin River in coordination with the Corps of Engineers' Sacramento and San Joaquin River Basins Comprehensive Study (yr 4-7).
12. Continue high priority actions that reduce direct mortality to fishes (yr 1-7):
    - Aggressively screen existing unscreened or poorly screened diversions in the Delta, on the Sacramento River, San Joaquin River, and tributary streams based on a systematic priority approach.
    - Remove select physical barriers to fish passage.
13. Continue gravel management; e.g., isolate gravel pits on San Joaquin River tributaries and relocate gravel operations on Sacramento River tributaries. Most gravel work would be implemented in subsequent stages with designs and plans for ecosystem reclamation of gravel mining sites (yr 1-7).
14. Develop and begin implementing a CALFED comprehensive non-native (exotic) invasive species prevention, control, and eradication plan (yr 1-7) including the following:
    - Implement invasive plant management program in Cache Creek.
    - Develop ballast water management program.
    - Develop early-response invasive organism control programs.
    - Evaluate CALFED implementation actions and how those actions may benefit non-native species to the detriment of native species or the Bay-Delta ecosystem.
15. Provide incremental improvements in ecosystem values throughout the Bay-Delta system in addition to habitat corridors described above (yr 1-7); e.g., pursue actions that are opportunity-based (willing sellers, funding, permitting, etc.), provide incremental improvements on private land through incentives, develop partnerships with farmers on "environmentally friendly" agricultural practices, etc.
16. Incorporate ecosystem improvements with levee associated subsidence reversal plans (yr 1-7).
17. Evaluate the feasibility of harvest management to protect weaker stocks (yr 1-7).

provided by state and federal agencies from appropriations and/or bond measure proceeds pursuant to a cost-share agreement to be developed before the Record of Decision (yr 1-7).

3a. **Expand Existing State and Federal Agricultural Water Conservation Programs to Support On Farm and District Efforts** - Expand State and federal programs (DWR, USBR, USFWS, DFG, DHS, NRCS, and SWRCB) to provide technical and planning assistance to local agencies in support of local and regional conservation and recycling programs. Develop and implement an agricultural water use efficiency program in cooperation with the NRCS, USBR, DWR, Resource Conservation Districts, and other appropriate entities. The purpose of the program would be to promote cost-effective agricultural water management practices that yield multiple benefits. The AWMC will be used to assist in soliciting and selecting individual projects to best meet the objectives developed through the Ecosystem Restoration and Water Quality Programs and to improve water supply reliability. Local entities will be encouraged to collaborate on combined or regional proposed projects. Priority will be given to projects that are designed to achieve specific Delta-related benefits (e.g., improving water quality as opposed to general assistance or information dissemination). This action will be coordinated with the above action (Agricultural Financial Incentive Program) and will require increased funding above current levels (yr 1-7).

3b. **Expand Existing State and Federal Conservation Programs to Support Urban Water Purveyor Efforts** - Expand State and federal programs (DWR, USBR, USFWS, DFG, DHS, and SWRCB) to provide technical and planning assistance in support of conservation and recycling programs.

3. **Create Public Advisory Committee** - Create public advisory committee to advise State and federal agencies on structure and implementation of assistance programs, and to coordinate federal, State, regional and local efforts for maximum effectiveness of program expenditures (yr 1).

4. **Develop Urban Water Management Plan Certification Process** - Select an agency to act as certifying entity, obtain legislative authority, carry out public process to prepare regulations, implement program beginning with plans submitted in 2005. Access to CALFED benefits will be contingent upon certification of suppliers' Urban Water Management Plan (yr 1-3).

5. **Implement Urban BMP Certification Process** - Implement a process for certification of water suppliers' compliance with terms of Urban MOU with respect to analysis and implementation of Best Management Practices for urban water conservation. Provide funding support for the California Urban Water Conservation Council to carry out this function. Access to CALFED benefits will

12. **Water Measurement Program** - Develop, after consultation with CALFED agencies, the Legislature, and stakeholders, state legislation that requires appropriate measurement of water use for all water users in California (yr 1-3).

13. **Implement Recommendations Regarding Market Mechanisms** - Implement recommendations of strategic plan with regard to using market mechanisms to facilitate efficiency improvements (yr 1-7).

2.5 Water Transfer Framework

The water transfer framework is designed to facilitate, encourage, and streamline the water transfer process while protecting water rights and legal users of water and addressing and avoiding or mitigating third-party socioeconomic impacts and local groundwater or environmental impacts. This would occur through a proposed framework of actions, policies and processes. The first stage implements the recommended changes which will continue in subsequent stages. The prioritization of these and other water transfer actions will be further developed in the Water Transfers Program Plan which will be completed before adopting the Record of Decision.

Environmental, Socio-economic, and Water Resource Protection Actions

1. Establish the California Water Transfers Information Clearinghouse to collect and disseminate data and information relating to water transfers and potential transfer impacts, and perform research using historic data to understand water transfer impacts (yr 1).
2. Coordinate with CALFED agencies to formulate policy, under their existing authorities, for disclosure of additional required water transfer analysis (yr 1).
3. CALFED agencies work with the Legislature and stakeholders to determine whether additional legislation to protect water rights, including area of origin priorities, is necessary (yr 1-2).
4. CALFED agencies identify, arrange, fund, and carry out a specific number of targeted water transfers for instream environmental purposes, with a goal of using these transfers to evaluate the effectiveness of California Water Code Section 1707 procedures. CALFED agencies will work with stakeholders to develop and issue appropriate rules, regulations, or procedures to make these environmental water transfers effective (yr 1-3).
5. CALFED agencies will work with stakeholders, the Legislature, and local agencies to identify appropriate assistance to enable local agencies to develop and implement groundwater management programs to protect groundwater basins in water transfer source areas (yr 1-2).

functions to assist watershed groups with obtaining information on funding opportunities, technical assistance, and data storage and retrieval (years 1-7).

5. Ensure the completion of project level environmental documentation and permitting; assist with documentation and permitting processes as appropriate (years 1-7).
6. Evaluate the benefits (including economics) that accrue from watershed plans and projects designed to achieve CALFED goals and objectives (yr 1-7).
7. Establish, fund, and maintain watershed restoration and maintenance assistance to aid local watershed groups and private landowners in project concept, design, and implementation (years 1-7).
8. Coordinate with other CALFED and non-CALFED programs on watershed related activities (years 1-7).
9. Work with stakeholders and the Legislature to develop a state-wide umbrella watershed management act (yr 1-3).

2.7 Storage

New groundwater and/or surface storage will be developed and constructed, together with aggressive implementation of water conservation, recycling and a protective water transfer market, as appropriate to meet CALFED Program goals. The CALFED Integrated Storage Investigation (ISI) will provide the comprehensive framework for evaluation of storage implementation and management opportunities through Stage 1 and beyond. The ISI will include evaluations of north of Delta off-stream storage, in-Delta and adjacent to Delta storage, on-stream storage enlargement, groundwater and conjunctive use, power facilities reoperation, and fish migration barrier removal evaluations. The ISI will provide the analyses necessary for CALFED's determination of the proper mix of groundwater and surface storage facilities, and CALFED's Water Management Strategy will rely on these analyses as it identifies an appropriate combination of water management tools for attaining CALFED's water supply reliability goals and objectives. Detailed environmental documentation, feasibility studies, permitting, and construction activities would be initiated as appropriate.

Groundwater Banking and Conjunctive Use - *This first stage includes developing cooperative partnerships with local agencies and landowners in both the north-of-Delta and south-of-Delta areas, and includes construction of several south-of-Delta projects. Additional south-of-Delta and north-of-Delta projects, if feasible, could be constructed in later stages.*

1. Develop and implement a framework for groundwater banking and conjunctive use projects (yr 1).
2. Include provision to protect overlying and other landowners' water rights (yr 1-7).
3. Provide funding assistance to local governments and special districts for groundwater plan development (yr 1-7).

6. Begin construction (if needed) and begin new operations if conditions and linkages are satisfied (yr 6-7).

Fish Migration Barrier Removal Evaluations - *As part of the ERP some obstructions to fish passage such as small dams are being considered for modification or removal in order to restore anadromous fish access to critical spawning habitat. The following actions will be taken in the context of the ISI:*

1. Work with CALFED agencies, the State Water Resources Control Board, local water agencies, and interested stakeholders to identify opportunities for modification or removal of obstructions such as small dams (yr 1-2).
2. Develop environmental documentation (yr 3-5).
3. Perform feasibility studies and economic analyses (yr 3-5).
4. Obtain permits, negotiate agreements, and seek site specific authorization as required. (May require design of facilities modifications or removal actions (yr 5-7).
5. Identify beneficiaries and negotiate cost sharing agreements (yr 5-7).
6. Begin construction (if needed) and begin new operations if conditions and linkages are satisfied (yr 6-7).

2.8 Conveyance

CALFED's basic strategy is to develop a through-Delta conveyance alternative based on existing Delta configuration with some modifications. Some construction of improvements in the south and north Delta should occur within the first stage to improve conditions for ecosystem and water management reliability. Part of the first stage consists of studies and evaluations of the major conveyance features. This will allow conveyance projects to be ready for permitting and construction in later stages should the projects be necessary to meet Program objectives.

South Delta Improvements - *South Delta improvements consist of methods to control flow, stage and circulation, improve fish passage, fish screen and salvage facilities, and potentially provide SWP/CVP interties upstream and downstream of the export pumps. South Delta conveyance improvements included in Stage 1 would function with the basic conveyance strategy or potential modifications. The conveyance improvement actions listed below would be implemented concurrently (bundled) with other actions as detailed in Chapter 3, in a subsection titled CALFED's Delta Conveyance Strategy. The other Stage 1 actions are components of the other CALFED Program elements.*

1. Construct a 500 cfs test facility at the Tracy Pumping Plant to develop best available technology for fish screening and salvage for the intakes to the SWP and CVP export facilities (yr 1-3).

1. Develop operational criteria for the Delta Cross Channel that balances flood control, water quality, water supply reliability and fisheries concerns (yr 1-4).
2. Study and evaluate a screened diversion structure on the Sacramento River (or equivalent water quality actions) as a measure to improve drinking water quality in the event that the Water Quality Program measures do not result in adequate improvements toward CALFED's drinking water quality goals. This evaluation would consider how to operate the Delta Cross Channel in conjunction with this new diversion structure to improve drinking water quality, while maintaining fish recovery (yr 1-4).
3. If the Water Quality Program measures are consistently not achieving drinking water quality goals, and the evaluation demonstrates that a screened diversion of up to 4000 cfs would help achieve those goals without adversely affecting fish populations; a pilot screened diversion would be constructed. This pilot would likely include a fish screen, pumps and a channel between the Sacramento and Mokelumne River. The design, size and operating rules for this pilot facility would allow for analyses of impacts to upstream and downstream migrating fish as well as impacts from habitat shifts resulting from increased flows in the eastern Delta on Delta species. Following evaluation of the pilot facility operations, a final decision would be made on whether the diversion channel and structure should continue to be used, and if so, what the operational rules and optimum size of the diversion should be (yr 5-7+).
4. Evaluate opportunities to resolve local flood concerns and create tidal wetlands and riparian habitats by constructing new setback levees, improving existing levees, and dredging channels in the north Delta, especially the channels of the lower Mokelumne River system. Any proposed channel modification would be consistent with CALFED's current direction on Delta conveyance. This evaluation would carefully coordinate ecosystem restoration, regional flood control, levee system integrity, and conveyance issues and concerns to ensure that a balanced solution to all concerns would be proposed. (yr 3-7).
5. Balance the above actions to address water quality, flood control, water supply reliability, and fisheries concerns (yr 1-7).

Isolated Facility Component - *The isolated facility component of a dual transfer Delta facility would consist of a new canal or pipeline connecting the Sacramento River in the northern Delta to the SWP and CVP export facilities in the southern Delta. A process for determining the conditions under which any additional conveyance facilities and/or other water management actions would be taken in the future would include:*

1. An evaluation of how water suppliers can best provide a level of public health protection equivalent to Delta source water quality of 50 ppb bromide and 3 ppm TOC (yr 1-7). This will include an equivalent level of investigation and studies on all of the actions which could be used to achieve CALFED's targets.
2. An evaluation based on two independent expert panels' reports–one on

are selected, implemented, operated, and maintained. The Finance Plan includes financial principles incorporating a benefits-based approach, a strategy for cost allocation and cost sharing for each program, and provisions for crediting of other parallel efforts. The Plan will recognize the public and private benefits derived from water quality, environmental protection, flood control, recreation, and a reliable water supply.

1. Establish reliable short-term and long-term funding for each program element and for each package of Stage 1 actions (1-7):

   -- Finalize cost-share agreements (yr 1).
   -- Finalize details surrounding repayment or crediting (yr 1).
   -- Seek legislation and budget authority for financing, including federal and state appropriations, new authority for state bonds, private financing and new user fees (yr 1-7).
   -- Develop and refine cost estimates as program actions are identified (yr 1-7).

2.11 Monitoring, Data Assessment, Research and Adaptive Management

Establish monitoring, data assessment and research activities for all program elements that provide reliable data and information which is assessed and translated into a useful format for management decisions. All the activities will be approached in a manner conducive to an adaptive management process. Consequently, most of the activities will be undergoing continual refinement through the seven year program.

1. Periodic review and refinement of the monitoring, data assessment and research plan from a long term perspective. (yr 1-7)
2. Periodic review and refinement of the monitoring, data assessment and research plan from a short term perspective which would include all elements of the Phase II, Stage 1 Program. (yr 1-7)
3. Help management define triggers and time periods which determine the need for a change in program direction. (yr 1-7)
4. Continue to develop and refine conceptual models to be used in evaluating actions undertaken by the programs. In keeping with the adaptive management format, the models will be continually updated with information generated by program actions. (yr 1-7)
5. Through a peer review process, evaluate the effectiveness of the adaptive management in the program decision making process. (yr 1-7)
6. Review the progress toward achieving overall CALFED program goals and objectives and whether individual programs are progressing at similar paces. (yr 1-7)
7. Complete monitoring identified by diversion effects on fisheries team to provide

3.0 NEAR TERM (STAGE 1A) ACTIONS

Implementation of actions begins in Phase III. This period will include site-specific environmental review and permitting as necessary. The first stage of Program implementation is critical to its long-term success because it will serve as an indication of the CALFED agencies and stakeholder community capacity to act on a cost-effective, practical, and equitable set of actions which advance the Program objectives.

The preliminary actions have been grouped into 7 bundles either to provide a balanced suite of actions for specific regions within the CALFED problem and solution areas, or to provide programmatic balance between actions which are not necessarily associated with any specific geographic area. The bundles highlight certain critical ongoing programs which will require implementation decisions in the near future, but do not include the many other ongoing monitoring and improvement programs in the Bay-Delta region.

Lower San Joaquin River and South Delta Region Bundle

This bundle is designed to address water management and fisheries concerns in the south Delta and lower San Joaquin River region, for local water uses as well as State and federal exporters. Specific issues to be addressed include fisheries, water quality, water supply reliability, recreation, flood control, and wildlife habitat. The preliminary actions are designed to advance feasibility and environmental evaluations and to implement corrective actions in the south Delta region as well as in upstream watersheds which affect the quality and quantity of flows in the San Joaquin River.

Lower Sacramento River, North Delta Bundle

This bundle is designed to develop a balanced solution to concerns surrounding fishery and water quality impacts of diversions from the Sacramento River into the central Delta, to address regional flood concerns, and to substantially enhance riparian and wetlands habitat corridors in the region.

Yolo Bypass, Suisun Marsh, and West Delta Bundle

This bundle is designed to address water quality, fisheries protection, and habitat enhancement actions for the west Delta region, including Suisun Marsh, the west Delta islands, and the Yolo Bypass. Because of the concern over toxicity effects of mercury originating in the Cache Creek basin, this bundle includes substantial research to identify those sources and potential remediation tools.

Table 3.1. Draft Early Implementation Actions

Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
	Lower San Joaquin River and South Delta Region Bundle								
2	Ecosystem Restoration Program: South Delta Region	Identify and advance specific regional ERP goals, coordinated with other facilities and operational changes, such as flood protection, barriers, and export operations.	Improve fisheries and wildlife habitat	ERP	Levees	$2.0	$3.0		
2.1	Agricultural Diversions Screening Program	Consolidate and screen local ag diversions based on an appropriate priority and initiate a screen maintenance program, per Water Quality Control Plan, May 1995. A component of #31	Reduce fisheries entrainment impacts	ERP		see 31	see 31		
3	Water Quality Actions	Strategy to resolve regional water quality problems; initiate highest priority actions.		WQ		-	-		
3.1	Stockton Dissolved Oxygen Solution Alternatives	Evaluate and implement appropriate actions to improve San Joaquin River dissolved oxygen conditions.	Improve WQ in San Joaquin River in vicinity of Stockton	WQ	ERP	$1.0	$1.0		
3.21	Veale Tract Drainage Discharge Relocation Feasibility Study and Environmental Documentation	Possible cost share with Contra Costa Water District.	Improve drinking water	WQ		$1.0	$4.0		
3.22	Feasibility Study: Management, Relocation and/or Treatment of RD 800 Drain Discharge	Coordination with CCWD and other affected entities	Improve drinking water	WQ		$1.0	$6.0		
3.3	Implement On-Farm drainage management measures	Salinity and Selenium management.	Reduce transport of salinity and selenium contaminants to San Joaquin River	WQ	ERP	$0.5	$0.5		
3.4	Implement regional irrigation efficiency improvement programs to reduce saline drainage		Reduce volume of saline drainage	WQ	ERP	$0.5	$0.5		
3.5	Evaluate/Implement as Appropriate Release of saline agricultural drainage water during high flow periods	Implement regional and on-farm drainage retention facilities and manage discharges.	Improve late season WQ in lower San Joaquin River, potential drinking water quality impact	WQ: not yet listed		$0.1	$0.1		
3.6	Study: Non-seawater sources of bromide (Br^-) in San Joaquin drainage.	Determine if non-seawater sources of Br in San Joaquin Drainage are significant and impact water quality	Improve drinking water source quality: ID most important sources; develop abatement strategies	WQ	ERP	$0.5	$0.5		
3.7	Seek to provide water for San Joaquin River flows to meet WQ, VAMP, ESA, and other flow objectives through water purchases/transfers from willing sellers.	Component of Environmental Water Account. See #93, #94	Increased instream flows during significant periods	WT	ERP	see 94	see 94		
3.8	Study: Evaluate Recirculation Benefits and Impacts	If feasible, acquire from willing sellers water to recirculate to meet WQ and VAMP objectives.	Potential to improve water quality and meet VAMP flow requirements in lower San Joaquin River	S/C	ERP, WQ	$0.1	$0.1	DWR,USBR	
3.9	Implement spring flow management action, such as the Proposed Vernalis Adaptive Management Plan (VAMP)	Manage San Joaquin River flows, Delta exports, conduct fishery studies, evaluate benefits and minimize impacts. Establish San Joaquin River Water Quality Protection Reserve Fund to address impacts. Report on how VAMP funds will be used to improve water management practices.	Improve salmon survival, cu/gw management u/s, improve understanding of fish vs flow	external	ERP	$4.0	$4.0	USBR, DWR, and SJRGA	

Table 3.1 cont.

Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
	Lower Sacramento River, North Delta Bundle								
13	Restore Tidal Marsh and Riparian Habitats along Georgiana Slough	The assumption is that improved habitat will decrease the diversion effect on fisheries.	Improve fisheries and wildlife habitat	ERP		$1.5	$1.0		
14	Study North Delta ecosystem and flood control improvements including the Lower Mokelumne River		Flood control and habitat creation w/ levee berms	S/C	ERP	$1.0	$2.0	DWR	
15	Acquire and Convert Land for Shallow Water, Wetland, and Riparian Habitat	This action will contribute to establishment of a Mokelumne River Corridor.	Flood control and habitat creation w/ breached levees	ERP: Mokelumne Corridor		$3.0	$3.0	DWR, DFG, and others	
16	Study Feasibility of Delta Cross Channel Reop.and 2-4000 cfs Hood Diversion		Balance water quality and fisheries benefits, potential for improved drinking water quality	S/C	ERP, WQ	$1.0	$1.0	DWR	
	Subtotal					$6.5	$7.0		

Table 3.1 cont.

Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
	Delta-Wide ERP/Levees Bundle								
27	Levees Subventions		Levee System Integrity	Levees		$10.0	$11.0	DWR, Corps	Congressional authorization may be required for Corps participation with Non-Project Levees
28	Levees Special Projects		Levee System Integrity	Levees		$11.0	$11.0	DWR	
29	Emergency Response Program		Levee System Integrity	Levees		$11.0	$3.0	DWR	
30	Identify Risks to Delta Levees and Develop a Risk Management Strategy		Levee System Integrity	Levees	WQ, ERP, Conveyance	$1.0	$1.0	CALFED	
31	Evaluate the Need to Screen Small Diversions in the Delta and Implement	Consolidate and screen local ag diversions based on an appropriate priority and initiate a screen maintenance program, per Water Quality Control Plan, May 1995	Reduce fisheries entrainment impacts	ERP		$1.0	$1.5	DFG, DWR	
32	Nonnative Invasive Species (NIS) (Note: Expand to actions in SF Bay and Suisun Marsh, to reduce further invasions and eradication of *Lepidium*)	Demonstration projects. This action is part of an ecosystem-wide effort to control non-native invasive species with early emphasis on the Delta and the Bay.		ERP		$2.0	$3.0	USFWS	
33	Total Organic Carbon Evaluation	General Evaluation and Pilot Study: Total Organic Carbon Reduction, DWR to do engineering and technical oversight.	Improve in-Delta drinking water source quality.	WQ/ERP		$4.5	$2.0		
34	ERP Levee Relocations, Berms, Veg. Management	Cost included with In-Channel Island Restoration	Delta Shallow Water, tidal wetlands, and riparian habitat	ERP		$1.0	$1.0	DWR,DFG	
35	In-Channel Islands Restoration		Tidal wetlands, riparian habitat, special status species	ERP		$1.0	$1.0	DWR,DFG	
36	Assessment of sources and magnitudes of loadings of constituents of concern for drinking water	Includes TOC, nutrients, salinity, pathogens, and Br on Delta wide basis		WQ		$0.5	$1.0		
37	Determine Key Acquisition Areas for Conservation of Special Status Plant Species in the Delta, Suisun Marsh, and S.F. Bay			ERP		$0.5	$1.0		
38	Studies to Determine Propagation Techniques and Restoration Protocols of Rare Plants in the Delta, Suisun Marsh, and S.F. Bay			ERP		$0.5	-		
	Subtotal					$44.0	$36.5		

Table 3.1 cont.

Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
49	Comprehensive Flood Control Study	Major evaluation of Sacramento River and San Joaquin River systems, coordinated with ERP flood plain restoration opportunities.		External	Coord, Levees, S/C			Corps, DWR	
50	Sacramento River Mercury Source ID and Control/Remediation Study			WQ		$0.3	$0.8		
51	Sacramento River Levees Restoration			S/C		$2.0	$2.0	Corps, DWR	
52	San Joaquin River & Tribs Study, possible Implementation, and Acquisition	Implementation of components of Comprehensive Flood Control Study		ERP		$10.0	$5.0	DWR, Corps	
	Subtotal					**$36.3**	**$28.6**		

Table 3.1 cont.

Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
65	In-Delta and Adjacent to Delta Storage: Feasibility Study		Improve Storage/CU utility	S/C		$1.5	$2.0	DWR	
66	Power Facilities Reoperations Evaluation		Improve Storage/CU utility	S/C	ERP,WM	$0.5	$0.5	DWR, FERC, PUC, SWRCB, w/local water entities and stakeholders	
68	Fish Migration Barrier Removal Evaluations			ERP	S/C	$0.5	$0.5		
69	Financial Incentive Program	Local assistance (loans & grants) for cost effective water conservation/recycling actions, Low interest loans	reduce Demand	WUE					
70		Urban		WUE		$5.0	$12.0	CALFED, Multi-agency	
71		Ag		WUE		$24.0	$50.0	CALFED, Multi-agency	
72		Managed Wetlands		WUE		$1.5	$3.0	CALFED, Multi-agency	
73		Recycling		WUE		$14.0	$28.0	CALFED, Multi-agency	
74	Technical Assistance	Recoverable loss studies, on-farm conservation studies, funded through member agencies (USBR, DWR)	reduce Demand	WUE					
75		Urban		WUE		$0.8	$1.0	CALFED, Multi-agency	
76		Ag		WUE		$3.0	$3.5	CALFED, Multi-agency	
77		Refuges or Managed Wetlands		WUE		$0.2	$0.5	CALFED, Multi-agency	
78		Recycling		WUE		$0.8	$1.0	CALFED, Multi-agency	
79	Directed Studies			WUE					
80		Research ET		WUE		$0.2	$0.25	DWR, UC	
81		Pilot Measurement Program		WUE		$0.5	$0.65	CALFED, Multi-agency	
82	Establish the California Water Transfer Information Clearinghouse	Features of Clearinghouse in 2000/01; develop website to disseminate transfer information and approval process requirements. No user fees. Possibly house in new division of SWRCB.	Imp. Market efficiency	WT		$0.5	$0.5	CALFED	
83.1	Streamline the Water Transfer Approval Process	Working with SWRCB, DWR, USBR to create a more standard application process. Would be available through the Clearinghouse, among other things. Several year effort. Initial effort is to clarify existing process thru SWRCB guidebook.	Assure disclosure of proposed actions	WT		$0.09	$0.00	USBR, DWR, SWRCB	
83.2	Require Impact Analysis Disclosure for Water Transfers	Working with SWRCB, DWR, USBR to require transfer applicants to disclose socio-economic, groundwater, and cumulative impact assessments with approval applications. Several year effort. Reqiures agencies to adopt/modify existing requirements		WT		$0.02	$0.02	USBR, DWR, SWRCB	

Table 3.1 cont.

Bundle Action #	Action Description	Detail/Assumptions	Primary Effects	CALFED Program	Secondary CALFED Program	FY 2000 Cost (millions)	FY 2001 Cost (millions)	Implementing Entity	Implementing Authority Required?
95.22	Provide funding and assistance to locally led watershed efforts to help build and administer watershed education programs.	Fund the development of local education programs through communities, schools, and universities, non-governmental organizations, local agencies and watershed stewardship	Increased awareness and understandingwithin communities of the importance of ahealth functional watershed	WM	ERP	$1.0	$1.0	CALFED	
95.3	Establish, fund and maintain assistance to local watershed groups, and landowners for project concept, design, and implementation	Ensure adequate levels of technical assistance and scientific support to locally led watershed management programs.	Sound scientifically based watershed plans, and projects.	WM	ERP,	$3.0	$3.0	CALFED	
95.41	Assist CALFED's monitoring program to develop appropriate watershed management performance measures and monitoring protocols	Ensure that adaptive management can be applied at multiple scales (including site, project, and program) and across land ownerships by developing a suite of protocols to help track a wide range of watershed responses to change.	The program will have reliable data and information with to adaptively management the program, and program actitivities.	WM	ERP	$0.5	$0.5	CALFED	
95.42	Begin development of baseline information needed to conduct scientically sound watershed planning and management within watersheds of the greater Bay Delta ecosystem.	Support watershed assessment efforts in the tributary basins of the greater Bay Delta watershed consistant with CALFED's monitoring program and local watershed program needs.	Expanded information base available for watershed planning, implementaion and monitoring activities.	WM	ERP,WQ	$1.5	$1.5	CALFED	
95.43	Improve the use and usefulness of existing watershed resource information centers	Support the expansion of an active network of watershed data and information to assist watershed programs to conduct effective watershed management, conservation and restoration activities	Expanded capability of watershed managers to collect, store, retrieve and exchange data and information.	WM	ERP	$1.0	$1.0	CALFED	
95.5	Provide oversight for the program through the CALFED oversight antity	Insure adequate funding to conduct administrative, management, and oversight for the watershed program, within the framework of the overall CALFED oversight entity.		WM		$0.5	$0.5	CALFED	
96	Field Surveys for all special status species in and around all potential surface storage and groundwater sites			S/C		$1.0	$1.0		
96.5	Feasibility evaluation of water exchanges between San Joaquin River/Tulare lake watersheds and urban water users to improve drinking water quality			WQ	WT	-	-		
	Subtotal					$194.9	$254.9		